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March 7, 2003

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Dan Rosenblatt, Acting Section Head
Emergency Response Team (7505C)
U.S. EPA, Office of Pesticide Programs
Crystal Mall No. 2-Second Floor
1921 Jefferson Davis Highway
Arlington, VA 22202

**Re: Application for an emergency Specific Exemption for the use of Carbofuran to control cotton Aphids in Louisiana.**

Dear Mr. Rosenblatt:

The Louisiana Department of Agriculture and Forestry hereby makes application for a specific exemption to authorize the use of carbofuran (Furadan 4F Insecticide/Nematicide, EPA Reg. No. 279-2876) to control cotton aphids in the production of cotton in Louisiana. This application will document the need for this exemption.

The requirements of 40CFR 166.20 (a,b) along with supporting information are attached for your review. We trust that you agree with our assessment and will be able to act expeditiously on this application.

Sincerely,

Bob Odom, Commissioner

BO/BS/pl

Cc: Randal Johnson
Matthew Keppinger
Bobby Simoneaux

**APPLICATION FOR SPECIFIC EXEMPTION IN ACCORDANCE WITH SECTION 18 OF THE AMENDED FIFRA**

**CONTACT PERSON(S) AND QUALIFIED EXPERT(S)**

**CONTACT PERSON:**

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## LOUISIANA SECTION 18 EMERGENCY EXEMPTION APPLICATION

## STATE AGENCY RESPONSIBLE FOR THE EMERGENCY PROGRAM

Louisiana Department of Agriculture and Forestry
5825 Florida Blvd.
Baton Rouge, LA 70821

## NAME OF PEST

Scientific Name: Aphis gossypii Glover

Common Name: Cotton Aphid or Melon Aphid

## DESCRIPTION OF PESTICIDE

Common Chemical Name: Carbofuran

Trade Name: Furadan 4F
EPA Reg. No: 279-2876

Formulation: Flowable Liquid

Active Ingredient: Carbofuran

% Active Ingredient: 44.0%

Manufacturer: FMC Corporation

## LOUISIANA SECTION 18 EMERGENCY EXEMPTION APPLICATION

## DESCRIPTION OF PROPOSED USE

Sites to be Treated: Application will be made to cotton fields in the State of Louisiana that have economically damaging levels of cotton aphids as determined by field monitoring.

Method of Application: Furadan may be applied using ground or aerial application equipment, in a minimum of 10 gallons per acre total volume by ground or 2 gallons of spray solution per acre by air. Surfactants or crop oil concentrates may be used to insure complete coverage of foliage. Refer to the product label for additional application instructions.

Rate of Application (in terms of a.i. and product): Furadan may be applied at the rate of 0.25 lbs. (AI)/Acre (8.0 fl. oz.) of the 4F formulation per acre. The number of applications of Furadan 4F shall be limited to 2 per acre in the 2003 growing season.

Acreage to be treated: It is projected that approximately 850,000 acres of cotton will be grown in Louisiana in 2003. It is also estimated that economic levels of cotton aphids may occur on 500,000 acres. This would create a need for a total of 500,000 acre applications.

Quantity of Pesticide: At the standard rates of 0.25 lbs. (AI)/Acre, a total of 250,000 lbs. of Furadan 4F would be utilized under the specific exemption as proposed.

Use Season (period of time for which chemical is requested): Applications would be made during the cotton production season. The period of time that economic infestations are most likely to occur are between June 1 and September 30, 2003. The expiration date for this emergency will be September 30, 2003.

Declaration of Emergency and Prescriptions for Use: Furadan 4F will not be used under this specific exemption unless an emergency situation has been declared by the Louisiana Department of Agriculture and Forestry upon the recommendation of crop consultants, extension service personnel or state pesticide authorities. An emergency will be declared when cotton aphid infestations reach an average of 50 aphids per leaf in the top 1/3 of the plant in pre-blooming cotton or 100 aphids per leaf in the top 1/3 of the plant on blooming cotton on 50% of the plants in the field and control failures with conventional insecticides have occurred. A control failure is defined as not achieving 80% control with standard rates of recommended insecticides. Until these conditions have been exceeded, Furadan 4F cannot be applied to

any field, regardless of Section 18 approval.

Documentation of a control failure must be provided to the Louisiana Department of Agriculture and Forestry within 96 hours of application of Furadan 4F. Documentation for a control failure will include 1) written recommendation for a recommended aphicide, use rate and the average aphid population density per leaf from the top 1/3 of the plant at the time of application, and 2) written recommendation for Furadan 4F and the average aphid population density per leaf from the top 1/3 of the plant at the time of Furadan 4F application. A written recommendation by a licensed consultant or state pesticide authority shall be in the possession of the applicator prior to use and a copy of that recommendation shall be filed with the Louisiana Department of Agriculture and Forestry within 96 hours. A copy of this recommendation must also be presented to the agricultural chemical dealer/distributor to purchase Furadan 4F.

Stewardship Training: Stewardship training must include all individuals involved in Furadan 4F application or recommendation. Individuals entering Furadan 4F treated fields at any time from application to crop harvest must complete Furadan 4F stewardship training. Each of these individuals must sign three copies of the Furadan 4F stewardship agreement form from FMC Corporation. One copy of the agreement form is to be retained by the individual signing, one sent to FMC Corporation and one copy sent the Louisiana Department of Agriculture and Forestry.

Worker Protection Standards: Agricultural consultants, extension personnel and state pesticide authorities are not exempt from Furadan 4F re-entry intervals and must adhere to label restrictions for re-entry.

Agricultural consultants, extension personnel and state pesticide authorities must have a label in-hand prior to recommending Furadan 4F use.

No more than 2 applications/cotton field/season at any labeled rate.

Application: Application to cotton is prohibited within only pyrethroid restrictions by air or yards by ground of an occupied residence, body of water, or edible food source.

## LOUISIANA SECTION 18 EMERGENCY EXEMPTION APPLICATION

### DISCUSSION OF EVENTS OR CIRCUMSTANCES WHICH BROUGHT ABOUT THE EMERGENCY CONDITION

The cotton aphid has become a more serious pest of cotton in Louisiana in recent years. Under favorable conditions, this pest can reach extremely high numbers and cause economic losses to Louisiana growers.

In 1995, cotton in Louisiana suffered a severe outbreak of cotton aphid. Although the naturally occurring fungal disease, Neozygites fresenii, usually provides natural control of the cotton aphid, it is difficult to predict when disease epizootics will occur. Outbreaks of the aphid in 1995 occurred in early-June three to four weeks before an epizootic of the fungus occurred. Yield loss effects of the aphid are variable depending upon the time of infestation. Research indicates that losses of approximately 125 to 152 lbs of lint per acre have been measured in some cases (Weathersbee and Hardee, 1994; Harris et al. 1992).

Some Louisiana cotton growers made two to three applications in attempts to control aphids in 1995. Many of these treatments cost $10-$15 per acre. While some treatments did give good control (80% or better) aphid numbers rebounded quickly within a few days with few control options left. Numerous producers and consultants are requesting that alternative products be made available if a similar situation occurs in 2003.

The rationale for requesting an emergency exemption is not that another cotton aphid outbreak is eminent in 2003, we have no method of predicting when an outbreak, such as that in 1995, will occur. Rather, cotton aphids populations can build very rapidly under the right conditions. If an outbreak were to occur, we would have no effective control methods to manage this pest.

Therefore, we are requesting an emergency exemption for the use of Furadan 4F based on the following: (1) cotton aphid outbreaks are increasing in number and intensity throughout the cotton belt, (2) the cotton aphid is not controlled effectively with insecticides currently available, (3) cotton producers cannot afford the yield losses and control costs associated with the presently available insecticides, (4) insecticide use would be drastically reduced if an effective insecticide was available.

### PRODUCT EFFICACY

Furadan has been shown to be highly effective against cotton aphids. Results of small plot, replicated field trials in Louisiana and the Mid-South are presented in Attachment 5. The average percent control of cotton aphid populations for

Furadan 4F (0.25 lb [AI]/A) between 1993 and 1995 was 88.5%. During this period, the best control achieved with a recommended product was 87.6% with Bidrin 8EC (0.3 lb [AI]/A) at 2 DAT. All other products treated in these tests provided less than 70% control.

## LOUISIANA SECTION 18 EMERGENCY EXEMPTION APPLICATION

## ALTERNATIVE METHODS OF CONTROL

Insecticides recommended for control of cotton aphid include Bidrin 8E, Dimethoate 4E, Monitor 4E, Thiodan 3E, and Phaser 3E.

There are many naturally occurring biological control agents that also aid in suppressing aphid infestations. Several predatory insects feed on aphids and a species of parasitic wasp often parasitizes a high proportion of the population. However, the most important biological control agent is the fungus Neozygites fresenii, which gives rapid and effective control of the cotton aphid. However, development of an epizootic of this fungus is generally dependent upon a high population of aphids, and often do not occur until damage has been sustained from the aphid.

## RESIDUES, RISK INFORMATION

Residue studies submitted by FMC Corporation have been received. It has been determined that residues resulting from applications made under this exemption are not expected to exceed 1.0 ppm of the insecticide carbofuran (of which no more than 0.2 ppm is carbamates) in or on the raw agricultural commodity, cottonseed. The general summary of acute toxicology data, environmental fate and ecotoxicological effects data and a label for Furadan use are attached as Attachment 3 and Attachment 1.

## NOTIFICATION OF REGISTRANT OR BASIC MANUFACTURER

Prior to making this application, FMC Corporation was notified by the Louisiana Department of Agriculture and Forestry that this specific exemption is being requested. FMC Corporation has responded positively to this request (see Attachment 2).

## DESCRIPTION OF PROPOSED ENFORCEMENT PROGRAM

The Louisiana Pesticide Law, Chapter 20 of Title 3 of the Louisiana Revised Statutes of 1950, comprised of R.S. 3:3201 through R.S. 3:3280, designates the Department of Agriculture and Forestry as the state agency to register, monitor and regulate the use of pesticides. The Louisiana Pesticide Law is more stringent than the Federal Insecticide, Fungicide and Rodenticide Act. Louisiana Department of Agriculture and Forestry is the state agency responsible for insuring compliance with all pesticide laws. A copy of the Louisiana Pesticide Law and the Rules and Regulations adopted pursuant to that law are on file with the Regional EPA Office in Dallas, Texas.

Control and supervision of the program will be as follows: FMC Corporation representatives will monitor the program for efficacy and any adverse effects, and will provide an estimate of total acreage and total quantity of pesticide used. The Louisiana Department of Agriculture and Forestry will monitor the applications of the exempted pesticide as needed to determine that the provisions of the specific exemption are being followed.

## LOUISIANA SECTION 18 EMERGENCY EXEMPTION APPLICATION

## ANTICIPATED ECONOMIC LOSS

Table 1 presents the historical net and gross cotton revenues in Louisiana form 1998 to 2002, plus the five year averages. In 1995, the cotton aphid infested approximately 75% of Louisiana cotton. Most of the cotton aphid infestations occurred early in the season prior to bloom. This indicated that the potential for yield loss from cotton aphid in Louisiana is much higher if infestations occur earlier in the season.

Table 1 also shows the projected net and gross cotton revenues for 2003, assuming that there would be a 9.2% yield loss. These data represent the economic analysis if aphids are controlled with currently registered pesticides, which provide fair control at best. In 1999, the average cost of one insecticide application (using registered insecticides) for cotton aphids was $10.82 per acre in the mid-south states of Louisiana and Mississippi (Williams, 2000). These treatments greatly increase production costs plus they are generally ineffective in controlling the pest and preventing damage.

Table 1 shows the 2003 projected revenues from cotton if Furadan is available for use. The anticipated benefits statewide would be $33,900,000 if aphids reached levels of 1995 on 75% of Louisiana cotton acreage. If Louisiana cotton growers suffer a 9.2% yield loss from cotton aphids, it is estimated that net returns to cotton growers could be (-$37.60/acre).

Table 1. Historical Net and Cotton Revenues in Louisiana from 1998-2002.

| Year | Yield Per Acre | Price Per Pound[1] ($/lb) | Gross Revenue ($/acre) | Operating Cost Per Acre ($/acre) | Net Revenue Per Acre |
|---|---|---|---|---|---|
| 1998 | 590 | $0.729 | $430.11 | $498.10 | ($-67.99) |
| 1999 | 704 | $0.729 | $513.22 | $506.85 | $20.95 |
| 2000 | 635 | $0.729 | $462.92 | $510.36 | ($-17.44) |
| 2001 | 615 | $0.623 | $383.15 | $519.25 | ($-136.10) |
| 2002 | 736 | $0.623 | $458.53 | $519.25 | ($-60.72) |
| Average | 656 | $0.687 | $450.67 | $510.76 | ($-60.09) |
| 2003W/ | 656 | $0.623 | $408.68 | $519.25 | ($-110.56) |
| 2003W/O | 596 | $0.623 | $371.09 | $519.25 | ($-148.16) |

[1] Official target price.
[2] Estimate for 2000 from Louisiana Cooperative Extension Service.
W = Revenues with Furadan.
W/O = Revenues without Furadan assuming 9.2% yield loss from cotton aphids.

## References

Harris, F.A.; Andrews, G.L., Callavet, D.F., R.E., Jr. 1992. Cotton Aphids Effects on Yield, Quality and Economics of Cotton. Proc. Beltwide Cotton Conference; National Cotton Council of America, 1992. V2, pg. 652-656.

Weathersbee, A.A., III, Hardee, D.D., Meredith, W.R. 1994. Yield Comparison Between Smooth and Hairy Vetch Isolines of Cotton Subjected to Different Levels of Aphid Infestation. Proc. Beltwide Cotton Conference: National Cotton Council of America, 1991. 1994 V. 2, pg. 1003-1006.

Williams, M.R. Cotton insect losses estimates, 2000. pp. 746-757. Proc. Beltwide Cotton Conf., National Cotton Council, Memphis, TN., *IN* Press.

Table 1. Efficacy of Furadan 4F and selected insecticides against cotton aphids.

| Year | Location | Treatment | Rate lb(AI)/A | Evaluation Period | % Control | Test Type |
|---|---|---|---|---|---|---|
| 1993 | Winnsboro (Leonard, LSU) | Furadan 4F | 0.25 | 3DAT | 94.7 | Replicated small plot |
| | | Admire 2F | 0.022 | | 63.5 | |
| | | Admire 2F + Sildyne | 0.022 + 0.125[1] | | 66.8 | |
| 1994 | Winnsboro (Leonard, LSU) | Furadan 4F | 0.25 | 2DAT | 81.5 | Replicated small plot |
| | | Admire 2F | 0.044 | | 67.3 | |
| | | Admire 2F + Sylgard 309 | 0.022 + 0.125[1] | | 54.6 | |
| 1995 | Winnsboro (Leonard, LSU) | Furadan 4F | 0.25 | 2DAT | 98.0 | Replicated small plot |
| | | Thiodan 3EC | 0.5 | | 41.9 | |
| | | Bidrin 8EC | 0.3 | | 87.6 | |
| 1995 | Winnsboro | Furadan 4F | 0.25 | 7DAT | 79.8 | Replicated small plot |
| | | Thiodan 3EC | 0.5 | | 0.0 | |
| | | Bidrin 8EC | 0.3 | | 30.4 | |

[1] % v/v.